

narrowed, or straightened posteriorly, and with the fore-angles, though obtuse, less decidedly rounded off); and the two minute teeth behind the two larger ones, of its front-tibiæ, are in the *A. oculata*, nearly obsolete. Its most decided difference, however, is in the shape of the eye,—which is considerably larger and more circular, and extends much nearer to the lateral edge (and hinder angle) of the clypeus, than is the case with the *A. granulata*.

Although a representative (viz. the *A. sardoa*, Gené.) has been described from Sardinia, it is probable that the group is essentially an African one, and that many allied forms will consequently, in the course of time, be brought to light. In addition to the present species, from the Cape of Good Hope, and the *A. granulata* from Senegal, I possess a third (nearly related, I imagine, to the Sardinian one) from the Canaries, captured by myself near Arrecife, on the sandy shores of the island of Lanzarote. Of the *A. oculata* there was but a single example amongst the insects collected by Mr. Bewicke; but I have seen a second in the possession of Mr. Waterhouse.

XI.—Descriptions of new Genera and Species of Exotic Hymenoptera.

By FREDERICK SMITH, Esq., Assistant in the Zoological Department of the British Museum.

OF all the various genera of bees, there is not one which contains more brilliant and beautifully coloured species than *Augochlora*; the Mexican species, described in the present paper, are remarkable for the extreme richness of their colouring; this genus contains the Halicti of the New World. They are separated, however, from the genus *Halictus* by several structural characters, and also by the different habit of the species; all, whose economy I have ascertained, burrow in putrescent wood, or construct tunnels under the bark of trees. Eight new species of *Bombus* are described, those from Mexico are amongst the most beautiful of that widely distributed genus.

Family Andremidæ.

Div. ACUTILINGUES.

Genus AUGOCHLORA, Smith.

1. *Augochlora flammea*.

A. læte polita, ærata, punctata, et pube pallida sparse tecta, alis hyalinis.

Female. Length 3 lines. Brilliant shining copper, with tints of rich carmine, particularly on the disk of the thorax, and on the vertex of the head; closely and strongly punctured on the head and thorax;

the metathorax smooth and shining, with a deep central longitudinal furrow; the clypeus, sides of the head, and of the thorax, with cinereous pubescent; the legs pubescent; the wings hyaline, the nervures testaceous, the stigma pale testaceous. The abdomen finely punctured and pubescent.

Hab. Mexico. This beautiful species is in the Collection of the British Museum.

2. *Augochlora ignita*.

A. capite thorace pedibusque læte viridibus, delicatule rugosis; abdomine fulgido, metallico kermesiaco-rubris, delicatule punctatis.

Female. Length 4 lines. Head and thorax bright green, and finely rugose; the clypeus, cheeks, sides of the thorax, and the legs, thinly clothed with cinereous pubescence; the antennæ black; the apex of the clypeus black and coarsely punctured; the apex of the mandibles ferruginous, the basal portion black, tinged with green; wings hyaline and iridescent, the nervures testaceous, the stigma pale. Abdomen of a rich refulgent metallic crimson-red, finely punctured and shining; the margins of the segments with a thin narrow fringe of cinereous pubescence; beneath, covered with longer pubescence of the same colour.

Hab. Mexico. In my own Collection.

The general colouring of this beautiful bee is exactly that of *Chrysis ignita*.

3. *Augochlora viridana*.

A. læte viridis; capite thoraceque rugosis, abdomine punctato, pube pallide fulva, alis hyalinis.

Female. Length $3\frac{1}{2}$ lines. Bright emerald-green; the head and thorax finely rugose, the clypeus coarsely punctured, with its apex black; the mandibles black at their base, tinged with green, their apex ferruginous; the antennæ black, with the flagellum fulvous beneath; the cheeks, thorax at the sides and beneath as well as the legs, with glittering cinereous pubescence; the tarsi rufo-piceous; the wings hyaline, the nervures and stigma testaceous, the latter palest. Abdomen finely punctured; the margins of the segments narrowly fringed with white pubescence; the abdomen is entirely covered with a thin pale pubescence, which is longest and most dense beneath.

Hab. Mexico. In my own Collection.

4. *Augochlora refulgens*.

A. fulgida viridis, vertice, thoracisque dorso fulgido-æreis, delicatule punctatis, alis hyalinis.

Female. Length $3\frac{1}{2}$ lines. Bright shining green; the disk of the thorax and the vertex of the head with a coppery refulgence; the clypeus coarsely punctured, a bright green line at the inner margins of the eyes; antennæ black, faintly piceous beneath; the mandibles

black, tinted with green at the base, their apex piceous. The wings hyaline, their apical margins slightly clouded, the nervures testaceous, the tegulæ shining green; the legs obscurely rufo-piceous, the tarsi palest, the pubescence pale and glittering; the pectus with a brassy tinge. Abdomen subovate, very convex above and shining, finely punctured, the basal segment more strongly so; the pubescence on the apical segment fuscous, that on the abdomen beneath pale; the floccus on the posterior femora white.

Hab. St. Paul (Brazil). Mr. H. W. Bates.

GENUS MEGALOPTA, *Smith*.

1. *Megalopta ianthina*.

M. nigro-purpurea violaceo tincta, facie polita ærata; pedibus nigris, alis hyalinis, venis testaceis.

Female. Length 4 lines. Dark purple with tints of violet, shining and very delicately punctured; the face brassy; the clypeus with deep punctures, its anterior margin, the mandibles and base of the scape, ferruginous; the flagellum, except the two basal joints, fulvous beneath; tips of the mandibles black. Thorax: the tegulæ and legs rufo-piceous, apical joints of the tarsi ferruginous; the coxæ and femora with cinereous pubescence, the scopæ on the posterior tibiæ black; the wings hyaline, the nervures testaceous, the stigma pale. Abdomen with a few cinereous hairs at the apex, and the margins of the segments beneath fringed with the same; the abdomen pale rufo-testaceous beneath.

Hab. Ega (Brazil). In the Collection of the British Museum.

Of this species Mr. Bates remarks,—“A most lovely species of bee, exhaling a very powerful aroma months after death. One day, on breaking a piece of dead branch to pieces, I came upon a row of cells containing these bees, already enclosed and ready to escape. There were about a dozen cells placed end to end, of which two contained pupæ; most of them escaped: I could only secure four or five.”

GENUS APISTA.

Head rather narrower than the thorax, sub-orbiculate; eyes elongate-ovate; ocelli in a curve on the vertex; *antennæ* geniculated, 12-jointed in the female, the flagellum very slightly thickened towards the apex. *Mentum* elongate, cylindrical; the *labial palpi* 4-jointed, the joints short, stout, and cylindrical, nearly of equal length, each being in succession more slender, the apical one pointed; the *paraglossæ* as long as the two basal joints of the palpi, and capitate at their apex; the *maxillary palpi* 6-jointed, the joints short, stout, and cylindrical, tapering to the apical joint; the labium about half the length of the mentum, blunt at its apex, and very pubescent. *Thorax* rotundate;

the superior wings with one marginal cell, truncate at its apex; with three submarginal cells, the first as long as the two following, which are both slightly narrowed towards the marginal cell; the second submarginal cell receiving the first recurrent nervure at its base, nearly uniting with the first transverso-medial nervure, the third submarginal receiving the second transverso-medial nervure at its apex, uniting with the third transverso-medial nervure. Abdomen oblong-ovate and subdepressed.

1. *Apista opalina*.

A. capite thorace pedibusque nigris; clypei marginibus mandibulisque ferrugineis; flagello fulvo, tegulis, alarum venis, tarsorumque articulis apicalibus rufo-testaceis; abdomine pallide ferrugineo subopalino.

Female. Length 6 lines. Head, thorax, and legs black; the clypeus anteriorly and the mandibles ferruginous; the flagellum, excepting the two basal joints, fulvous, slightly fuscous above; a little pale downy pubescence in front of the anterior stemma and along the inner margin of the eyes. The thorax above has a short, dense, sooty-black pubescence, blending into white at the sides and beneath; a narrow line of white pubescence passes over the tegulæ and base of the scutellum; the floccus on the posterior femora beneath is dense, white, and of a woolly texture; the legs beneath and the apical joints of the tarsi rufo-piceous; the scopæ on the posterior tibiæ short, dense, and black; the wings hyaline and iridescent, the nervures ferruginous. Abdomen oblong-ovate, pale ferruginous, with a beautiful opaline iridescence, and longer than the head and thorax; the apical margins of the first and three following segments with a narrow fascia of white pubescence; the two apical segments with ferruginous hairs intermixed with fuscous ones at the sides; the apical segment has a small black naked triangular space in the middle, carinated at the sides.

Hab. Brazil. Mr. H. W. Bates. In my own Collection.

This insect has a strong resemblance in form to *Apis mellifica*; it is altogether a most singular bee; its situation in arrangement must, I think, be between the genera *Macropis* and *Andrena*.

Genus MEGACILISSA, *Smith*.

1. *Megacilissa notabilis*.

M. capite thoraceque nigris, thorace abdominisque basi pube fuliginoso-nigra dense vestitis; abdomine rubro; alis subhyalinis.

Female. Length 8 lines. Head and thorax black; the cheeks and clypeus densely covered with short white downy pubescence; eyes very large and approximate at their vertex; the mandibles short and slender, bidentate at their apex; the flagellum piceous beneath. Thorax wider than the head, densely clothed with short downy sooty-black pubescence, having a velvety appearance; the legs obscure ferruginous,

with fuscous and black pubescence; the metathorax has a triangular smooth shining space behind; the wings subhyaline, their nervures blackish-brown. The abdomen of a deep flesh-coloured red; the basal segment fringed with sooty-black pubescence; the two apical segments thinly covered with black hairs; the segments beneath fringed with black hairs.

Hab. St. Domingo. In the Collection of the British Museum.

2. *Megacilissa eximia*.

M. capite thoraceque nigris; abdomine nigro-æneo; thorace abdominisque basi pube brevi fulva dense vestitis; alis subhyalinis, venis ferrugineis.

Female. Length 9 lines. Head and thorax black, the latter densely clothed with short downy fulvous pubescence, which is palest on the sides and beneath. The vertex fringed with fuscous pubescence; a tuft of the same colour occupies the space between the ocelli; there is also a similar tuft at the insertion of the antennæ; the cheeks covered with short downy white pubescence; a line of the same colour runs round the base of the clypeus and along the inner margin of the eyes; the clypeus rufo-fuscous; the flagellum, except the two basal joints, rufo-fulvous beneath. The wings subhyaline, faintly clouded at their apex; the nervures ferruginous, the costa black; the legs ferruginous, with a dense fulvous pubescence, the intermediate and posterior tibiæ fuscous outside. Abdomen nigro-æneous, with a dense short fulvous pubescence at the base; the apical margins of the second and two following segments with a fascia of short glittering golden pubescence; the two apical segments with long brown pubescence; the abdomen is rufo-testaceous at its base and beneath; the apical margins of the segments beneath thickly fringed with long pale-fulvous pubescence.

Male. Rather smaller than the *female*, but closely resembling that sex; it differs in having the clypeus and scape of the antennæ yellow.

Hab. Mexico. In the Collection of the British Museum.

3. *Megacilissa luctuosa*.

M. aterrima; thorace dense et breviter velutino-piloso, pilis nigris, flocco post-femorali albo-lanuginoso; alis nigro suffusis.

Female. Length 10 lines. Black; the pubescence on the cheeks sooty-black; the clypeus with a central broad longitudinal depression; the pubescence on the face black. The thorax densely clothed with black pubescence above, having a velvety appearance; beneath, the pubescence is more of a brown or sooty-black; the floccus on the posterior femora white, dense and woolly; the wings dark-fuscous. Abdomen nigro-æneous above; the two apical segments thinly clothed with black pubescence; beneath, the basal segment has a patch of short pale pubescence on each side; the apical margins of the segments with a fringe of long sooty-black pubescence.

Hab. Mexico. In the Collection of the British Museum.

Genus LAGOBATA, n. g.

Head not quite as wide as the thorax; eyes ovate; ocelli in a curve on the vertex; mandibles small, subacute and edentate; labial palpi 4-jointed, the two basal joints elongate, flattened, broad, of about equal length, their inner margin thin and semitransparent, the second joint pointed at the apex; the two apical joints minute, inserted near the apex of the second joint towards its apex; the palpi a little shorter than the labium; the labium lanceolate, acute at its apex. The maxillary palpi short, 6-jointed, each joint in succession more slender than the preceding; the inner margin of the maxillæ, towards its apex, fringed with short thick setæ; the maxillary lobe fringed with setæ longer than those on the maxilla. Thorax globose; the anterior wings with one marginal cell, which is rounded at its apex; with three submarginal cells of nearly equal length, the first subquadrate, the second narrowed towards the marginal cell and receiving the first recurrent nervure in the middle; the third much narrowed towards the marginal cell; the posterior legs with long dense scopæ; the claws of the tarsi simple.

This genus of bees is closely allied to those which are included in the genus *Panurgus*, and appears to me to form a connecting link between the latter and the genus *Megachile*. The species resemble those of the genus *Tetrapedia* of Klug.

1. *Lagobata diligens*.

L. ferruginea, thorace abdomineque nigro maculatis; alis hyalinis, venis pallide testaceis.

Female. Length 5 lines. Ferruginous, inclining to yellow; the region of the scutellum and a triangular shape between the antennæ black; in some examples the front is altogether blackish, in others wholly rufo-testaceous, the clypeus and labrum pale rufo-testaceous; the flagellum more or less fuscous above; the tips of the mandibles blackish. Thorax: the disk sometimes black above, or with two oblong black maculæ, in some specimens obsolete; the metathorax usually with black stains, the pectus black; the wings colourless-hyaline, iridescent, with the nervures pale testaceous; the legs pubescent, the posterior pair with long dense fulvous scopæ. Abdomen oblong, narrowed to the apex; the first and three following segments with an ovate black spot on each side; sometimes the basal margins of the segments are black, the black spot uniting with the basal band; the apical margins are in some examples stained, no two specimens exactly correspond; beneath, much paler than above, each segment with a round spot, more or less dark; the apex of the abdomen with fulvous pubescence on each side.

Hab. Para, Ega, and St. Paul's (Brazil).

Subfamily DASYGASTRÆ.

Genus MEGACHILE, Latr.

1. *Megachile Tithonus*.

M. nigra; capite thoraceque pube nigra vestitis, abdomine dense fulvo pubescente, basi nigro; alis nigro-fuscis.

Female. Length 10 lines. Black; the head, thorax, legs and base of the abdomen densely clothed with short black pubescence; the second and following segments are clothed, above and beneath, with bright ferruginous pubescence; at the extreme base of the second segment is an intermixture of black pubescence; the anterior margin of the clypeus truncate, with a slight point, or tubercle, produced in the middle of the margin; the mandibles long, stout, and armed at their apex with two strong acute teeth; the wings brown-black, with a slight violet iridescence.

Hab. Knysna (South Africa). Walter Trimen, Esq. In the British Museum Collection.

Subfamily SCOPULIPEDES.

Genus EPICHARIS, Klug.

1. *Epicharis elegans*.

E. capite thoraceque nigris, pube atra vestitis; abdomine flavo.

Female. Length 9 lines. The head, thorax and legs black, the vertex and thorax densely clothed with short black pubescence; the mandibles orange-yellow at their apex, the tips black; the flagellum obscurely rufo-piceous beneath; wings fusco-hyaline and iridescent; the posterior femora and basal joint of the tarsi densely clothed with broad scopæ of bright pale-fulvous pubescence. Abdomen honey-yellow, the extreme base black; the basal segment with a small fuscous stain in the centre.

Male. About the same size as the female, but differs in having dark cinereous pubescence on the thorax; the scape of the antennæ in front, the clypeus, sides of the face, labrum and base of the mandibles yellowish-white; the posterior femora and basal joint of the tarsi outside, and the knees yellow; abdomen as in the female.

Very like *E. bicolor*, but has the basal joint of the posterior tarsi broad, margined within, and produced into a stout spine at the apex.

Hab. Mexico. M. Sallé. In the Collection of the British Museum.

Subfamily SOCIALES.

1. *Bombus festivus*.

B. niger, pubescens; thorace supra abdominisque segmentis duobus apicalibus pube alba vestitis; alis fuscis.

Female. Length 13 lines. Black and pubescent. The head with

long sooty-black pubescence on the front and beneath, the cheeks with a short downy cinereous pile. The disk of the thorax with silvery-white pubescence; the apical joints of the anterior and intermediate tarsi, and the posterior tibiæ and tarsi rufo-piceous; wings fusco-hyaline. Abdomen: the pubescence on the first four segments short, dense and black, that on the two apical ones silvery-white.

Hab. Northern India. In the British Museum Collection.

2. *Bombus opulentus*.

B. niger, pubescens; vertice, thorace supra, abdominisque basi pube læte fulva vestitis; alis nigro-fuscis.

Female. Length 9 lines. Black, pubescent; the pubescence on the face black, that on the vertex fulvous. The thorax clothed above with fulvous pubescence, a tuft of the same colour beneath the wings; the pubescence on the legs black, that on the basal joint of the posterior tarsi within obscurely ferruginous, the apical joints of the tarsi rufo-piceous. Abdomen: a large quadrate patch of fulvous pubescence at the base above, extending to the apical margin of the second segment, the pubescence otherwise intensely black. The wings dark brown.

Hab. North China.

This beautiful species was captured by Mr. R. Fortune: it is in the Collection of the British Museum.

3. *Bombus laboriosus*.

B. niger, pubescens; thoracis lateribus, abdominisque tribus segmentis basalibus pube pallido-flava vestitis, segmentis apicalibus pilis ferrugineis tectis.

Female. Length 8 lines. Black, pubescent; the head entirely black, with the clypeus very smooth and shining, and delicately punctured. The thorax with black pubescence above and beneath, that on the sides pale yellow; the pubescence on the legs entirely black; the wings fusco-hyaline, the nervures black. Abdomen: the three basal segments clothed with pubescence of a pale yellow, somewhat lemon-coloured; that on the third segment not quite extending to the lateral margins; the apical segment thinly sprinkled with ferruginous hairs.

Worker. Length 5 lines. Coloured like the female.

Hab. Oajaca (Mexico). In the Collection of the British Museum.

4. *Bombus modestus*.

B. niger, pubescens; thorace antice, scutello, abdominisque apice flavis.

Female. Length 9 lines. Black, pubescent; the clypeus very smooth, shining, and delicately punctured. Thorax: the pubescence above before the wings yellow; the scutellum with a slight admixture of

fulvous hairs; the wings subhyaline; the pubescence on the legs black, that on the basal joint of the posterior tarsi within ferruginous, the claw-joint of the tarsi obscurely ferruginous. Abdomen: the third and fourth segments clothed with yellow pubescence, the fifth with black, and fringed on its apical margin with yellow hairs, the apical segment has also a thin clothing of hair of the same colour.

Worker. Length $5\frac{1}{2}$ lines. The pubescence similarly disposed to that of the female, but paler, that on the apical segments white.

Hab. Oajaca (Mexico). In the Collection of the British Museum.

5. *Bombus diligens.*

B. hirsutus, ater; alis nigricantibus, ano rubro.

Female. Length 10 lines. Black, and clothed with black pubescence; wings dark brown, shining. The pubescence on the thorax short and dense, except on the disk above, which is smooth and shining; the three apical segments clothed with ferruginous pubescence, the apical segment smooth and shining in the middle.

Hab. Oajaca (Mexico). In the Collection of the British Museum.

This species closely resembles *Apathus rupestris*, and *Apis arenaria* of Panzer; but it is a true *Bombus*, and distinct from every species with which I am acquainted.

6. *Bombus venustus.*

B. hirsutus, ater; thorace antice, scutello, abdominisque basi et fascia media pallide flavo-albis; alis nigricantibus.

Female. Length 10 lines. Black, pubescent; the head and a space between the wings very smooth and shining, with scattered black hairs, which are most dense at the insertion of the antennæ. The scutellum and the thorax in front and beneath the wings clothed with pale yellow pubescence; the abdomen at the base, and the third segment, with pale yellow pubescence; the wings dark blackish-brown.

Male. Length 6 lines. Coloured like the female, with the addition of a little pale pubescence on the clypeus; the antennæ as long as the thorax.

Hab. Constantia (Brazil). In the Collection of the British Museum.

GENUS APATHUS, Newm.

1. *Apathus intrudens.*

A. niger, pubescens; vertice, thorace supra pube pallide flava; alis fusco-hyalinis.

Female. Black: a tuft on the vertex and another in front of the anterior stemma pale yellow; the thorax clothed above with pale yellow pubescence, which is continued down the sides in front of the

tegulæ; the thorax smooth and shining behind the scutellum; the legs with very short black pubescence; the wings fusco-hyaline. Abdomen nearly naked, shining, incurved, and very acute at the apex, the margins of the segments thinly fringed with black pubescence.

Hab. Oajaca (Mexico). In the British Museum Collection.

2. *Apathus insularis*.

A. hirsutus, ater; thorace flavescente, fascia nigra; abdominis apice acuminato inflexo, lateribus pube flava vestitis.

Female. Length 9 lines. Black, shining and pubescent; a tuft on the vertex and another in front of the anterior stemma, yellow; the pubescence on the thorax above and beneath the wings yellow, a band of black pubescence between the wings, or sometimes only a space in the middle with black pubescence; the wings fusco-hyaline; the apical joints of the tarsi rufo-piceous; the basal joint of the posterior tarsi ferruginous within. Abdomen incurved, very smooth and shining, with more or less of bright yellow pubescence at the sides of the third and two following segments.

Hab. Vancouver's Island. Dr. Lyall. In the Museum Collection.

XII.—*Descriptions of new Diurnal* Lepidoptera. By W. C. HEWITSON.

EUEIDES.

1. *Eueides Eanes*, n. s. (Plate X. fig. 1.)

Upperside (*Male*) black. Anterior wing with lines and triangular spots of orange at the base, crossed beyond the middle by an irregular transverse band of yellow divided by the nervures. Posterior wing with a line of orange at the base, forming the centre of, but *not connected with*, six diverging lines of the same colour (one of which is wider than the others and traversed by a black line) which pass *between the nervures* to within a short distance of the outer margin.

Underside as above, except that it is lighter, that there is but one ray of orange at the base of the anterior wing, and that the posterior wing has the base of the costal margin orange and a band of minute white spots near the outer margin.

Exp. $2\frac{6}{10}$ inch.

Hab. Peru. In the Collection of W. C. Hewitson.

2. *Eueides Elias*, n. s. (Plate X. fig. 2.)

Upperside (*Male*) dark brown. Anterior wing with ten indistinct rufous spots: one from the base until it touches the second placed within the median nervures, four near the middle at angles with each other, and three not far from the apex. The inner margin orange.